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January 19, 1983

Mr. Thomas Tetting
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, UT 84114

RECEIVED
JAN 21 1983

RE: Mercur Mine Modification
ACT/045/017

DIVISION OF
OIL, GAS & MINING

Dear Tom:

In response to the Division's request for hydrologic design data related to the Mercur drainage plan, we are providing the following information:

SEDIMENT PONDS

All sediment ponds are sized to contain the 10-year 24-hour runoff from their controlled areas as live storage. They will also contain one-year's contribution of sediment from the controlled areas as dead storage. Spillway designs will pass overflow peaks from the 100-year 24-hour event.

<u>Pond</u>	<u>Live Storage</u>	<u>Dead Storage</u>	<u>Spillway</u>
A	6.7 Ac. Ft.	4.0 ac. ft.	108 cfs
B	3.9 " "	1.0 " "	61 "
C	5.3 " "	7.3 " "	85 "
D	1.9 " "	2.6 " "	29 "

All sediment pond embankments will be engineered fills with 2:1 side slopes and crest widths of at least 10-feet. At least one-foot of freeboard will be provided.

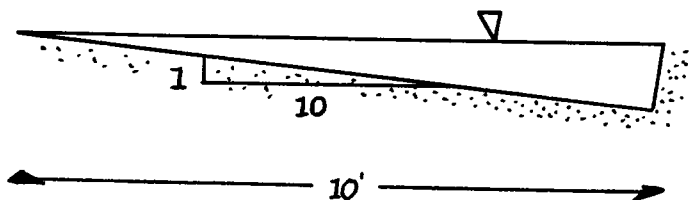
DRAINAGE DIVERSIONS

All drainage collection and diversion channels are designed to pass the 10-year 24-hour runoff. The estimated 10-year 24-hour peak flows are listed along with the zero freeboard capacity (Q_{max}) and velocity (V_{max}) for each channel.

AREA II DRAINAGE DIVERSION

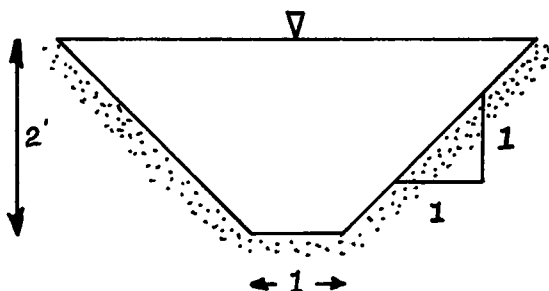
End of Ditch Design To Top of Dump

$q_p = 10$ cfs
 Slope = 2%
 $n = 0.030$
 $Q_{max} = 26$ cfs
 $V_{max} = 5.2$ fps



Minimum Plant Site Diversion Ditch

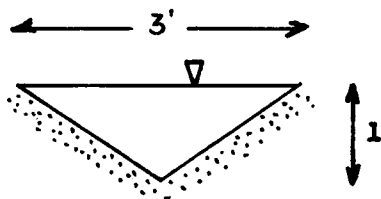
$q_p = 22$ cfs
 Slope = 1%
 $n = 0.030$
 $Q_{max} = 27.7$ cfs
 $V_{max} = 4.6$ fps



AREA III DRAINAGE CHANNEL

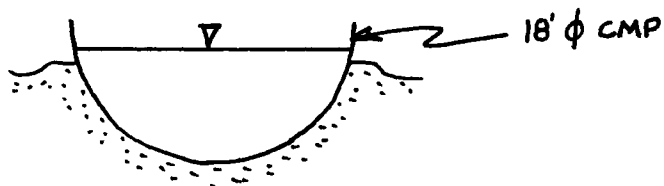
Reach A

$q_p = 1 - 4$ cfs
 Slope = 1%
 $n = .030$
 $Q_{max} = 4.2$ cfs
 $V_{max} = 2.8$ fps



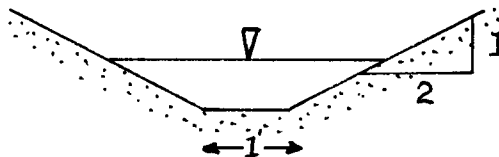
Reach B

$q_p = 1 - 5$ cfs
 Slope = 67%
 $n = 0.024$
 $Q_{max} = 5$ cfs
 $V_{max} = 12.7$ fps



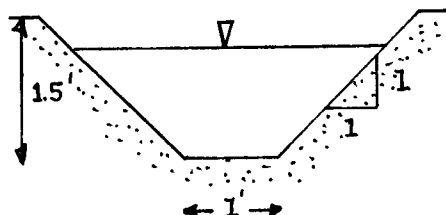
Reach C

$q_p = 5 - 7$ cfs
 Slope = 20%
 $n = 0.045$
 $Q_{max} = 29.7$ cfs
 $V_{max} = 9.9$ fps
 $V_{10 \text{ yr. } 24 \text{ hr.}} = 5$ fps



Reach D

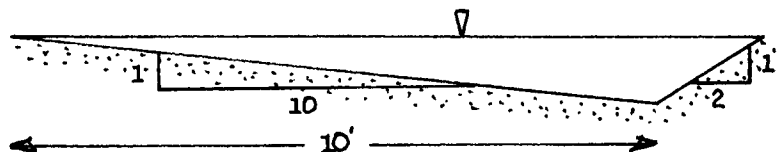
$q_p = 7 - 20$ cfs
 Slope = 10%
 $n = 0.045$
 $Q_{max} = 31.4$ cfs
 $V_{max} = 8.4$ fps
 $V_{10 \text{ yr. } 24 \text{ hr.}} = 8.3$ fps



AREA IV DRAINAGE DIVERSION

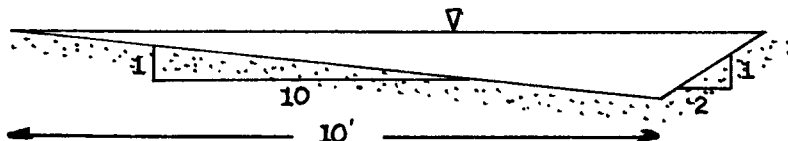
Midway Design

$q_p = 15-20$ cfs
 Slope = 2%
 $n = 0.030$
 $Q_{max} = 31.2$ cfs
 $V_{max} = 5.2$ fps



End of Ditch Design

$q_p = 20 - 35$ cfs
 Slope = 3%
 $n = 0.030$
 $Q_{max} = 38.4$ cfs
 $V_{max} = 6.4$ fps



Our present design for water conveyance across our haul roads is to use rock-paved swales instead of culverts. We believe that these non-erosive swales will be more reliable than their alternatives, which are 18" to 24" culverts up to 100' long.

Sincerely,

GETTY MINING COMPANY

Brian W. Buck

Brian W. Buck
Environmental Coordinator

BWB/nb